

Spotted Wing Drosophila

NOT KNOWN TO
OCCUR IN IDAHO



Common name: Spotted Wing Drosophila, Drosophilid Fly

Scientific name: *Drosophila suzukii* (Matsumura) (Diptera: Drosophilidae)

The spotted wing drosophila fly, was first identified in the Western United States in late 2008. Since July 2009, it has been found in Florida, Oregon and Washington. It has been established in Hawaii since 1986. In September 2009, spotted wing drosophila was confirmed in the Fraser Valley area of British Columbia, and in October, it was confirmed in fly trap samples from a cherry orchard in the Central Okanagan Valley.

Spotted wing drosophila is a temperate fruit fly, native to Southeast Asia; preferring temperatures of 20-30 °C. It is known to infest thin-skinned fruit. Many species of fruit flies are present in late summer; most normally infest overripe, fallen, decaying fruit, so are not crop-limiting pests. However, a spotted wing drosophila female lays her eggs inside sound fruit before harvest with her saw-like ovipositor, which contaminates fruit with larvae, and causes it to become soft and unmarketable.

Description

Many features are typical for *Drosophila* fruit flies, with a few key differences. Male and female characteristics are key identifiers for this species.

Adults: 2-3 mm (1/8 inch) long, brownish with red eyes and clear fly-like wings. Compared to other fruit flies, *D. suzukii* is a robust fly, but this is difficult to discern unless compared directly to other species. Males have a black/grey spot on the end of each wing, as well as two black 'combs' or bands on the fore legs. The females do not have spots or leg bands. Females have saw-like ovipositors that are used to cut into fruit skin (figure 1). Ovipositors are easier to see when extended. A hand-lens or dissecting microscope is needed to confirm ovipositor presence.

Larvae: Legless, headless, up to 6 mm long at maturity, white or transparent.

Pupa: 3 mm long, brown, football-shaped, two stalks with small finger-like projections on one end.

Eggs: 0.6 mm long, oval, white, 2 filaments at one end.



(Figure 1)

Host

To date in British Columbia, spotted wing drosophila have been confirmed infesting fall raspberry (*Rubus*), blueberry (*Vaccinium*), wild and cultivated blackberry (*Rubus*) and grape (*Vitis*). Fruit fly larvae were found in strawberry (*Fragaria*) and kiwifruit (*Actinidia*), but were not reared out to adults, so species was not confirmed. Additional hosts include dogwood (*Cornus kousa*), mulberry (*Morus*), cherry and other stone fruits (*Prunus*), and *Myrica rubra*.

Life Cycle

Spotted wing drosophila overwinters as adult flies. In spring flies become active, mate and lay eggs in suitable fruit. Based on climate model predictions, there could be up to 5 generations per year in B.C. Generations will likely be overlapping as flies are relatively long-lived particularly at temperatures 20°C and cooler. Based on a Japanese publication (Kanzawa 1939), oviposition lasts 10-59 days, with 7-16 eggs laid per day, and averaging 384 eggs per female. Eggs hatch in 2-72 hours, larvae mature in 3-13 days, and pupae reside in fruit or outside of fruit for 3-15 days. In the lab at constant temperature, one generation takes 21-25 days at 15°C, 50 days at 12°C, 19 days at 18°C, 8.5 days at 25°C, and 7 days at 28°C. Adults are attracted to dropped and decaying fruit and will feed on it.

Damage

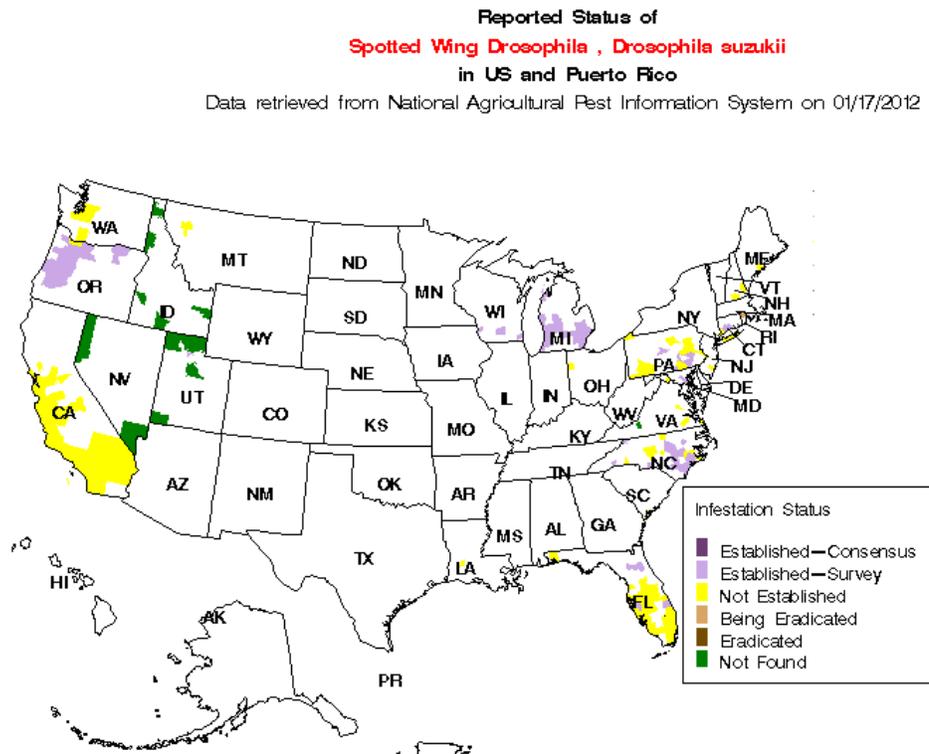
In 2009, populations and fruit damage did not become evident until late in the season (August). Females lay eggs under the skin of ripe fruit shortly before harvest. Larvae hatch and begin to feed within the fruit, causing softening in the area of feeding. There can be several larvae in a fruit, which hastens softening and fruit collapse. Holes the size of pin pricks from the females' egg laying activities are evident within the soft areas of infested fruit (figure 3). Besides contamination with larvae, these oviposition holes provide entry points for disease-causing organisms and secondary insects.

Other Resources

www.ipm.ucdavis.edu/EXOTIC/drosophila.html

<http://swd.hort.oregonstate.edu/>

www.ipm.ucdavis.edu/IPMPROJECT/workshop-spottedwing_drosophila.html



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